ELECTRICAL WIRING FOR THE HOME

PLANNING, SELECTION & INSTALLATION POINTS — NOTES

GOOD WIRING PREVENTS:
Unsightly, unsafe tangles of extension cords
Limitations on arrangement and use of equipment
Hazards to family, livestock, property
Equipment operating slowly, unsatisfactorily
Higher operating cost for equipment
Rewiring later at considerable expense

RESULTS OF POOR WIRING:

Lighting:	Heating equipment:
Dim lights	Long heating time
Blinking lights	Slow cooking
Lights left on	High current cost
Motors:	**Wiring:**
Sluggish starting	Blown fuses
Low in power	Tripped breakers
Run slowly	Damaged insulation
Run too hot	No place to plug in
Shortened life	Heating of wires
Quick burn-outs	Shorts, fires, shocks

BEFORE WIRING,
Study bulletins on wiring, lighting
Learn home and farm uses of electricity
Consider present and future usage:
  List equipment you may have in 10 years
Study plans for good arrangement of:

Kitchen	Laundry
Bath	Workroom

Decide where you will place equipment
Think about rearrangement of furniture
Learn methods of financing wiring

IN PLANNING WIRING:
Allow 2 to 3% of total cost of home
Make a rough plan for your wiring
Discuss plan with family and wireman
Secure bids on exactly same plan
Choose a reliable wireman
Mark exact location of outlets, switches
  and lights on walls, or make floor plan

WIRING INSTALLATION SHALL CONFORM WITH:
National Electrical Code
Local power supplier's requirements
Local and state regulations
Your own requirements for use

AFTER WIRING:
Have wireman label circuits in load center
Have wiring inspected
Pay not over 80% of wiring cost until
  wiring is inspected and approved

ADEQUATE WIRING PROVIDES:
Enough outlets, lights and switches
Enough circuits of right-size wire
  General purpose - living and bedrooms
  Appliance - kitchen, dining & work rooms
  Heavy-duty - kitchen & laundry chiefly
Adequate entrance for electric service
  3-wire (115/230 volt) for full use
  Breaker or fuse box with spare circuits

ENOUGH OUTLETS (each of proper type to serve its use & in right place - cords 6' usually):
1 duplex outlet for every 12' of wall
1 such outlet for any shorter usable space
Appliance outlet at each working area (or one for every 4' of counter space)
Appliance outlets in dining areas - with no place more than 10' from an outlet
Heavy-duty outlets for 115/230 v. equipment
3-pole grounding outlet for laundry equipment
Not less than 2 duplex outlets in any room
Weatherproof outlets on porches, outdoors

LOCATION OF OUTLETS:
Workroom outlets 40-42" above floor (washer outlet may be in ceiling, 3' away from tubs)
Other outlets - 18" above floor (May be in or just above baseboard; in switch plate except in kitchen, dining room, laundry)
Outlet near homemaker's dining chair
Outlet in bath - high & away from tub

ENOUGH SWITCHES:
3- or 4-way switches at most-used room entries unless entrances are closer together than 10'
For 2 entrances - use 2 3-way switches
For 3 entrances - use 2 3-way & 1 4-way
For 4 entrances - use 2 3-way & 2 4-way
3-way switches at top and bottom of stairways
Wall-switch for bathroom mirror lights
Wall-switch for lights at sinks, lavoratories

ENOUGH LIGHTING OUTLETS:
Ceiling light in each room (except possibly bath less than 60 sq. ft.) or have a switch-controlled duplex outlet for a lamp
Two lights in rooms twice as long as wide
Light at sink, work areas, bathroom mirror
Light on porch, in halls & most closets
Light at head and foot of stairways

LOCATION OF SWITCHES, LIGHTS:
Switches - about 48" above floor, on lock side of door, near door
Lights - usually centered in ceiling; may be centered over working areas
Brackets - usually 5' 8" above floor & paired (about 30" apart in bathroom)

IN BUYING SWITCHES, OUTLETS, PLATES:
Choose ivory equipment for light walls
Buy good quality equipment
  UL approved
  T-rated switches
  Double-wipe contacts
Weigh special features vs. cost:
  Mercury switches for quietness
  Pilot light to show current on
  Small luminous spot showing location

WIRING PROTECTIVE DEVICES:
Circuit breakers:
  Magnetic, or
  Combination (magetic & thermal)
    Thermal element provides time delay on temporary overloads, as motor starting
    Magnetic element opens breaker instantly on very heavy overloads or short circuits
Fuses - with or without time-lag features:
  Type S (tamper-resisting)
  Ordinary plug fuse (not recommended)
  Cartridge fuse - one-time fuse

ADVANTAGES OF CIRCUIT BREAKERS:
Easy to use - flip of breaker closes circuit
  No waiting for someone to change fuses
  Never out of fuses - nothing to replace
Safe - service restored by switch-like device
  Wrong-size protection cannot be substituted
  No fire hazards from make-shift substitutes
  No shocks in damp places or from poor use
Long-lasting - lasts the lifetime of a house
Attractive enough to put in kitchen or halls

PROVIDE CIRCUITS OF FOLLOWING TYPES:

Name	Location & Use of Circuit	No. Needed:
General purpose (or 15 A)	Living & bedrooms chiefly; fixtures, portable lamps, radios, small appliances	1 for each 500 sq. ft. floor space
Appliance (or 20A)	Kitchen, laundry, workroom and dining room appliances	*1 per room; kitchen - 2
Individual appliance or special purpose	Kitchen, laundry, workroom & utility or furnace room, occasionally attic & bath. See list of equipment, Pg.4	1 for range 1 for water heater - See list.
Spare or extra	Breaker or fuse box with space for future expansion	1 minimum 2 preferable

*Two for house under 1500 sq. ft. area.
3 or more if house is over 1500 sq. ft.

INDIVIDUAL CIRCUITS:

Required for:	Desirable for:
Range & water heater	Home freezer
Furnace equipment	Automatic washer
Space heaters	Air-cooling unit
Ironer	Bathroom heater
Clothes drier	Work shop or bench

WIRING REQUIREMENTS:

Type of circuit	Wire Size	Fuse- Amps.	Circuit Voltage	Capacity in Watts
General purpose	14	15	115	1725
	12	15	115	1725
Appliance	12	20	115	2300
Individual special appliances	12	20	115	2300
	10	30	115	3450
	8	40	115-230	4600-9200
Range	6	55	115-230	6325-12650

WHEN CHANGING A FUSE:

1. Disconnect the appliance you believe caused the fuse to blow
2. Open the main switch
3. Find out which fuse has blown
4. Remove blown fuse
5. Replace new fuse of proper size
6. Close the main switch

Remember to stand on a dry board when changing a fuse.

UL APPROVAL MEANS SAFE ELECTRICALLY; LOOK FOR:

UL Re-examination Service Marker
Combination label - UL & Mfrs. name
Die labeling - stamped, cast, or molded on
Listing in "List of Inspected Electrical Equipment," published by UL, Chicago
Listing in Card Reports in UL Offices in Chicago, New York, San Francisco and in inspection bureaus in 200 cities.

ADVANTAGES OF GOOD WIRING:

Saving of time, energy, temper & money
Convenient location of equipment
Efficient operation of equipment
Expansion of use as years pass
Fire and shock protection
Lower insurance rate
Higher resale or loan value